

Virtual field reconnaissance for mapping and exploration (Chile)

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Fieldwork is expensive and geology is a three-dimensional and often complex science therefore any tool which enables a greater understanding of the geology prior to and during fieldwork and hence saves time in the field is welcome.

GeoVisionary enables the geologist to compile all the existing data for a field area into a three-dimensional environment and virtually visit that area before going into the field. This workflow has been termed Virtual Field Reconnaissance (VFR).

The 'geologists toolkit' within GeoVisionary allows the geologist to record their interpretations as spatially referenced and attributed lines, points and polygons, which are then easily transferable to digital field systems. Tools such as the '3-point plane', 'orientated dip surfaces' and 'profile generation tool' allow the geologist to understand the three-dimensional structure of an area and form ideas for the underlying 3D geological model of an area to be mapped.

The BGS VFR workflow was recently used in cooperation between the BGS and Chilean Geological Survey (SERNAGEOMIN) and the Chilean National Mining Company (ENAMI) for geological mapping in a complex area of Andean Geology. Pre-fieldwork, geologists used GeoVisionary with high resolution satellite imagery, terrain models and geological information to digitise geological features, re-interpret existing maps and identify & prioritise targets for field investigation. This interpretation was taken to the field locations to be verified and augmented by geologists using the BGS digital data capture system (BGS SIGMA), leading to a final geological interpretation and creation of a geological map. Using GeoVisionary and the BGS VFR workflow means that geologists go into the field with a good understanding of the terrain which they are interpreting. Pre-field interpretation and target prioritisation focus the field effort and increase efficiency: valuable field time is not wasted in areas, which could be interpreted with VFR. The result is an improved geological map in less time.

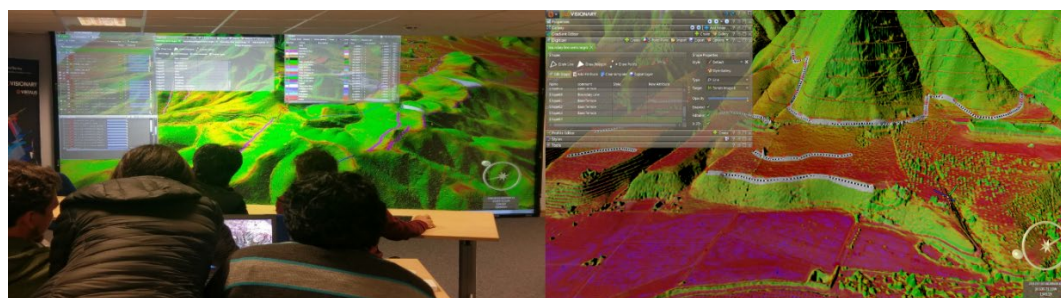


Figure 1. BGS VFR workflow collaboration between BGS, the Chilean Geological Survey (SERNAGEOMIN) and Chilean National Mining Company (ENAMI)